AMENDMENTS TO THE CLAIMS

Please replace the pending claims with the following claim listing:

1. (Original) An optical functional circuit in which a plurality of circuit elements are formed on a substrate, comprising:

a wave propagation medium for converting an optical path of a leakage light that is not emitted from a predetermined output port of the circuit element so as to prevent the leakage light from being coupled to a different circuit element,

wherein the wave propagation medium is constituted by an optical waveguide, which is provided with a clad layer formed on the substrate and a core embedded in the clad layer, and a part of the optical waveguide is formed in accordance with a refractive index distribution which is multiple scattered.

2. (Original) The optical functional circuit according to claim 1, wherein the refractive index distribution of the wave propagation medium is determined in accordance with the refractive index possessed by each of virtual pixels defined by a virtual mesh.

3. (Original) The optical functional circuit according to claim 1, wherein the refractive index distribution of the wave propagation medium is determined by modulating a width of the optical waveguide in an optical axis direction.

4. (Original) An optical functional circuit including a wave propagation medium which is constituted by an optical waveguide provided with a clad layer formed on a substrate

and a core portion embedded in the clad layer, and a part of the optical waveguide is formed in accordance with a refractive index distribution which is multiple scattered, said optical functional circuit being characterized in that:

in order that among optical signals made incident from an input port defined in the wave propagation medium, a stray light that is not emitted from a predetermined output port defined in the wave propagation medium is not coupled to a different output port, an optical axis of the input port and an optical axis of the predetermined output port are arranged so as not to be made coincident with each other.

5. (Original) The optical functional circuit according to claim 4, wherein, assuming that it is a half value θ of a beam divergence angle of the incident light from the input port, the predetermined output port is arranged outside a region sandwiched between two lines of an angle θ from the input port, with respect to the optical axis of the input port.

6. (Original) An optical functional circuit including a wave propagation medium constituted by a waveguide which is provided with a clad layer formed on a substrate and a core portion embedded in the clad layer and in which a part of the optical waveguide is formed in accordance with a refractive index distribution which is multiple scattered, said optical functional circuit being characterized in that:

on the substrate, positioning markers for defining input and output ports defined in the wave propagation medium are formed, and

(a) the positioning markers, which are formed on members having optical parts optically coupled to the input and output ports and define light focusing positions of the

optical parts, and (b) the positioning markers for defining the ports are aligned, thereby coupling the ports and the optical parts optically.

7. (Original) An optical functional circuit including a wave propagation medium constituted by an optical waveguide which is provided with a clad layer formed on a substrate and a core portion embedded in the clad layer, and a part of the optical waveguide is formed in accordance with a refractive index distribution which is multiple scattered, said optical functional circuit being characterized in that:

on the substrate, monitoring waveguides for defining input and output ports defined in the wave propagation medium are formed from an end facet on which the input port is formed to an end facet on which the output port is formed, and

(a) optical fibers for positioning, which are formed on members having optical parts optically coupled to the input and output ports and define light focusing positions of the optical parts, and (b) the monitoring waveguides are aligned, thereby coupling the input and output ports and the optical parts optically.

8. (Currently Amended) The optical functional circuit according to claim 6 [[or 7]], wherein the optical part which is coupled to at least one of the input and output ports is an optical fiber, and the member is a glass block for fixing the optical fiber.

9. (Currently Amended) The optical functional circuit according to claim 6 [[or 7]], wherein the optical part which is coupled to at least one of the input and output ports is any of a

light emitting element and a light receiving element, and the wave propagation medium is the wave propagation medium serving as a light collecting lens.

10. (Currently Amended) The optical functional circuit according to claim 6 [[or 7]], wherein the optical part which is coupled to at least one of the input and output ports is an optical waveguide, and the wave propagation medium is the wave propagation medium for mode field conversion.

11. (New) The optical functional circuit according to claim 7, wherein the optical part which is coupled to at least one of the input and output ports is an optical fiber, and the member is a glass block for fixing the optical fiber.

12. (New) The optical functional circuit according to claim 7, wherein the optical part which is coupled to at least one of the input and output ports is any of a light emitting element and a light receiving element, and the wave propagation medium is the wave propagation medium serving as a light collecting lens.

13. (New) The optical functional circuit according to claim 7, wherein the optical part which is coupled to at least one of the input and output ports is an optical waveguide, and the wave propagation medium is the wave propagation medium for mode field conversion.